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10/091,926	03/05/2002	Michael G. Flood	BRE4-M98a	7072

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EXAMINER

EREZO, DARWIN P

ART UNIT	PAPER NUMBER
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3761

DATE MAILED: 12/18/2003

12/17/03

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/091,926

Applicant(s)

FLOOD ET AL.

Examiner

Darwin P. Erez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 24-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Invention I in Paper No. 3 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 24-29 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 3.

Claim Objections

3. Claims 6, 7 and 10 are objected to because of the following informalities:
4. Claims 6 and 7 recites the limitation "the maximum pressure gradient α " which lacks antecedent basis in this claim or the independent claim.
5. Claim 10 recites the limitation "the anticipated g load range". There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claim 1 recites the limitation "the minimum pressure having a value less than the maximum for g-forces in excess of a selected value" which renders the claim vague and indefinite because is unclear as to what is meant by "a selected value", i.e., a selected value of what? The applicant is required to clarify the relation of the selected value to the g-force.

9. Claim 12 recites the limitation "the second level being less than the first level for g-forces greater than a selected value" which renders the claim vague and indefinite because it is unclear as to what the applicant is referring to with "second" and "first" and as to what the selected value is.

10. Claim 17 recites the limitation "the minimum value being lower than the maximum value for g-forces greater than a selected value" which renders the claim vague and indefinite because is unclear as to what is meant by "a selected value", i.e., a selected value of what? The applicant is required to clarify the relation of the selected value to the g-force.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1, 8, 9, 12, 17, 22 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,199,426 to Aldworth et al.

13. **As to claims 1 and 23**, Aldworth teaches a method of regulating the inhalation and exhalation of breathable gas to and from a pilot's airway in response to the pilot's spontaneous inhalation and exhalation breathing phases, while the pilot is experiencing excessive g-forces and equipped with an anti-g-suit and a face mask having a common inlet/outlet port in fluid communication with the pilot's airway comprising:

providing a source of pressurized breathable gas (col. 5, lines 51-53);

providing an inhalation valve **33** connected between the source of pressurized gas and the inlet/outlet port **13** of the face mask;

providing an exhalation valve **65** connected between the inlet/outlet port of the face mask and a low pressure area (col. 6, lines 37-44);

opening and closing the inhalation and exhalation valves, respectively, during the inhalation phase and controlling the pressure of gas supplied to the inlet/outlet port so that the pressure rises from a predetermined minimum to a predetermined maximum to increase the volume of breathable gas supplied to the pilot (during inhalation, valve **33** opens and provides positive pressure to the pilot; col. 3, lines 52-63); and

opening and closing the exhalation and inhalation valves, respectively, during the exhalation phase and controlling the pressure in the inlet/outlet port so that the pressure falls from the predetermined maximum to the predetermined minimum to decrease the exhalation effort required by the pilot (during exhalation, valve **65** opens to relieve

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pressure and return the pressure to a prior, predetermined state; col. 6, lines 44-49), the maximum pressure being a function of the g-forces to which the pilot is being subjected, the minimum pressure having a value less than the maximum pressure.

14. **As to claims 8 and 9**, Aldworth teaches the pilot equipped with an inflatable chest section and comprising the steps of inflating and deflating the chest section in synchronism with the gas supplied from the face mask at the same pressure (col. 7, lines 38-49).

15. **As to claim 12**, Aldworth teaches a system comprising:

a face mask having a common inlet/outlet port in fluid communication with the pilot's airway comprising:

an inhalation valve **33** having an inlet connected to a high pressure source (col. 5, lines 51-53) and an outlet connected to the face mask, the inhalation valve arranged to connect the high pressure source to the mask in response to a pressure in the mask falling below a minimum level and to limit the maximum pressure in the mask to a maximum pressure level in response to the g-force to which the pilot is subjected (during inhalation, valve **33** opens and provides positive pressure to the pilot; col. 3, lines 52-63); and

an exhalation valve **65** having an inlet connected to the face mask and an outlet connected to a low pressure region (col. 6, lines 37-44), the exhalation valve arranged to connect the mask port to the low pressure region in response to the pressure in the mask port reaching the maximum level and to limit the minimum pressure in the mask to the minimum level in response to the g-force to which the pilot is being subjected

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(during exhalation, valve **65** opens to relieve pressure and return the pressure to a prior, predetermined state; col. 6, lines 44-49).

16. **As to claims 17 and 22**, Aldworth teaches an apparatus comprising:

a face mask having a common inlet/outlet port in fluid communication with the pilot's lungs and the chest compression section;

an inhalation valve **33** having an inlet connected to the high pressure source (col. 5, lines 51-53) and an outlet connected to the mask;

at least one g-force sensor **99**;

a pressure regulator **46** connected to the gas source, the mask port and the inhalation valve and being responsive to the g-force sensor for opening the inhalation valve to conduct gas from the gas source to the mask inlet/outlet port during the inhalation mode and for closing the inhalation valve when the pressure in the mask port reaches a maximum value, the maximum value being a function of the g-force to which the pilot is being subjected;

an exhalation valve **65** connected to the high pressure source, the low pressure region and the mask port; and

a flow regulator **63** connected to the high pressure source and the inhalation valve outlet and responsive to the g-force sensor for conducting gas from the mask port to the low pressure region during the exhalation mode while limiting the pressure within the mask port to a predetermined minimum value as a function of the g-force.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aldworth et al.

19. **As to claims 3-5**, Aldworth is silent with regards to the predetermined minimum pressure within the range of 14-16 inches of H₂O less than the maximum pressure at any g-force greater than 4, and wherein the relationship between the pressure and the g-load is linear between the g load of 4-5.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrive at the recited limitation because the applicant has recited in the specification, page 13, line 25 – page 13, line 1, that is known in the state of the art for conventional anti-g equipment to operate at minimum pressure of 14-20 less than the maximum pressure at a g-force greater than 4. Furthermore, it is well known in the art for most conventional anti-g equipment to have a linear relationship between the pressure and the g-load.

20. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aldworth et al. and in view of US 4,219,039 to Jaggars.

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21. **As to claim 10 and 11**, Aldworth is silent with regards to inflating an anti-g suit with gas at a pressure which varies nonlinearly over the anticipated g load, wherein the pressure increases at a faster rate during low g loads and at a slower rate at higher g loads.

Jaggars teaches a method of inflating an anti-g suit with gas at a pressure which varies nonlinearly over the anticipated g load, wherein the pressure increases at a faster rate during low g loads and at a slower rate at higher g loads (see Fig. 8).

Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to add the step of Jaggars to the method of Aldworth because it prevents the pilot from being over loaded at higher g-loads.

Allowable Subject Matter

22. Claims 2, 6, 7, 13-16 and 18-21 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darwin P. Erezzo whose telephone number is (703) 605-0420. The examiner can normally be reached on M-F (8:30-5:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Weilun Lo can be reached on (703) 308-1957. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9302.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.

dpe


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